

“Comparison of short term morbidities following episiotomies repaired by rapidly absorbable polyglactin and chromic catgut”

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Abstract:

Objective: To compare the morbidity following episiotomy repair by rapidly absorbed polyglactin and chromic catgut.

Materials & Methods: This prospective longitudinal study was conducted in the Department of Obstetrics and Gynaecology, Medical College, Kolkata. 100 primigravida with episiotomy were divided into 2 groups Group I:CC (n=50) repaired with no 1,0 chromic catgut and Group II:VR (n=50) repaired with rapidly absorbed polyglactin and they were compared with respect to pain, wound complications, perineal edema and dyspareunia –at 2 hours, 2 days, 6 weeks and 3 months.

Results: With regard to postoperative complications like pain, perineal edema and wound healing and resuturing, polyglactin was significantly better than chromic catgut. Moreover, persistent perineal pain and dyspareunia were significantly less in VR group at 6 weeks and 3 months.

Conclusion: The short- term morbidity following episiotomy repair with rapidly absorbed polyglactin is less when compared to chromic catgut suture, and is emerging as the preferred suture for episiotomy repair.

Key Words: Episiotomy, rapidly absorbed polyglactin 910, chromic catgut, VAS score, dyspareunia, wound healing.

I. Introduction:

Routine use of episiotomy is no longer advocated¹. This is due to the menacing wound complications, debilitating perineal pain that may disrupt breast feeding, family life and sexual relations^{2,3}, and superficial dyspareunia.⁴

The factors influencing these complications may be the timing of episiotomy administration, technique of repair, the skill of operator and the type of suture material used.⁵

The first three risk factors depend on the skill and method adopted by the midwife or obstetrician for repair. The only modifiable factor is the choice of the suture material.

The perfect suture material for perineal repair should maintain tensile strength up to 7-14 days and dissolve quickly thereafter with as little inflammation as possible.⁶

The most popular rapidly absorbed suture for episiotomy repair is chromic catgut (CC). It maintains 60% tensile strength for 7-10days which is lost within 28days and suture material is digested within 90days.^{6,7} The increased incidence of perineal pain and wound breakdown are the major demerits of chromic catgut.

The fast absorbing polyglactin910 (VR) a newer derivative of polyglycolic acid has its tensile strength halved by day 5, lost by 10-14days and is totally absorbed by day 42⁶⁻¹⁰. Its tensile strength and rapid absorption is comparable to CC. It has the additional benefit of having earlier absorption. Being non-allergic it has a lower probability of wound infection and breakdown.

Thus, although costly, this may be a better alternative to our time tested chromic catgut suture for episiotomy repair.

In this study we compared the short term morbidities associated with episiotomies repaired by chromic catgut (CC) and rapidly absorbing polyglactin910 (VR) in our search for a suture material with lesser complications. The primary objective of our study was to compare the pain scores (VAS)– both immediate (2 hours, 48 hours) and delayed (6 weeks, 3 months) following episiotomy repair with chromic catgut (CC) or rapidly absorbing polyglactin910 (VR). Other morbidity parameters like wound healing, perineal edema and dyspareunia were also studied.

II. Materials and methods:

Study Design

This was a prospective longitudinal study conducted after obtaining approval from the institutional ethics committee.

Study population:

The study was conducted in the Department of Obstetrics and Gynaecology, Medical College, Kolkata from 1st July 2008 to 30th June 2009.

Inclusion Criteria:

Primigravidae between 16-35 years of age, with singleton pregnancy, vertex presentation, having a vaginal delivery requiring an episiotomy or sustaining a second degree tear (skin and perineal muscle) were eligible for the study.

Exclusion criteria:

Multiparous woman, multifetal pregnancy, non-vertex presentation, unhealthy perineum (severe vaginitis, Bartholinitis, abscess, genital warts), perineal oedema and varicose vein of vulva, previous perineal surgery, vaginal tear, lacerations, cervical injuries, para urethral tears, complete perineal tear, medical or surgical illness complicating the pregnancy.

Study method:

100 women with episiotomy fulfilling the inclusion criteria were enrolled from labour room immediately following delivery after taking informed consent.

Randomization was performed using two sets of numbered sealed envelopes. Participants were allocated into 2 groups i.e. Group I: CC (n=50) whose episiotomy was repaired with no. 1-0 chromic catgut or Group II: VR (n=50) whose episiotomy was repaired with no. 1-0 rapidly absorbed polyglactin 910.

The episiotomies were repaired by the same technique by qualified medical doctors trained in obstetrics and gynecology. Vaginal mucosa was sutured with continuous non interlocking stitches, the perineal muscles sutured with simple interrupted stitches, and skin by subcuticular stitches.

Routinely all women were put on analgesic tablet Ibuprofen 200mg 12 hourly for 5 days along with tablet Ranitidine 150mg 12 hourly, and antibiotic capsule Amoxicillin 500mg 8 hourly for 5 days. Any extra doses of analgesic needed (e.g. Diclofenac sodium 50mg/tab) was recorded.

Those with a healthy episiotomy was discharged at 48 h postpartum. At the time of discharge, she received advice about perineal wound care and maintaining local hygiene. The benefits of regular bowel and bladder habits, breast-feeding, and immunization were emphasised. They were informed about the various symptoms, which suggest wound complication (e.g. retention of urine, pain, swelling, abnormal and foul smelling discharge, fever, etc.) and to report immediately if there were any untoward symptom.

They were interviewed and examined after 2hours, 48 hours (during discharge), 6 weeks and 3 months after delivery regarding pain perception on lying, walking, and sitting posture using the visual analogue scale (VAS : marks pain from 1-10), analgesia needed, any bleeding or wound discharge, time of resumption of sexual activity and dyspareunia.

Local examination was done for wound gaping and nature of wound healing. Residual suture, when seen in 6 weeks, were removed. Those with wound dehiscence (involving muscles) were re-sutured.

Patient's satisfaction after episiotomy repair was quantified by satisfaction scoring. Score-1 depicts very much dissatisfied, score-2 depicts some dissatisfaction, score-3 means neither satisfied nor dissatisfied, score-4 means somewhat satisfied and score-5 depicts patient is highly satisfied.

Statistical analysis:

The 2 groups were compared with regard to the proportion of patients with perineal pain, wound dehiscence, secondary suturing, analgesic requirement and subsequent dyspareunia.

The probability distribution was assumed to be a normal distribution and so all the analysis were done on the basis of the normal model.

All the statistical analysis have been performed with the help of SPSS package, version 15.0. All collected data were tabulated and analysed using standard statistical protocols like mean, median, proportion and p-value. Statistical tools used in the process were statistical tests like Chi Square test and two tailed t test. P value < 0.05 was taken as level of significance.

To detect a minimum difference of 30% in number of patients having no pain at 6weeks between the 2 groups with an alpha of 0.05 and power of 80% a sample size of 40 in each group was calculated.

III. Results

The study included 100 patients with 50 in each groups with episiotomies repaired with chromic catgut or rapidly absorbed polyglactin 910. Both the groups - Group I: CC (n=50, repaired with chromic catgut) and Group II:VR (n=50, repaired with rapidly absorbed polyglactin 910) were comparable in terms of the age, period of gestation, birth weight and mode of delivery (Table 1).

Assessment of pain by VAS scoring: (Table 2, Fig1)

In the immediate postoperative period i.e. 2 hours or 48 hours most of the subjects in both the groups complained of varying degrees of pain. However, in more patients of group I (CC) the perception of pain was moderate ($P= 0.0001$) while majority of group II (VR) patients experienced mild pain scores ($P= 0.0001$). Although severe pain was present in few at 2hrs- 16% in group I (CC) and 6% in group II (VR) the difference was not statistically significant.

The proportion of patients who remained pain free after 6 weeks and 3 months was more in group II (VR) compared to group I (CC) patients- 82% vs 40% at 6 weeks ($P= 0.0001$), and 100% vs 84% at 3 months ($P=0.006$).

Pain that persisted even after 6 weeks in 60% of group I (CC) vs 18% of group II (VR) was mild but caused discomfort to the patient was statistically significant ($P= 0.0001$),

The difficulty in daily activities in the form of sitting and walking was more in CC group in immediate puerperium. It was 100% (CC) vs only 28% (VR) after 2hrs ($P< 0.005$), and 52% (CC) vs 6% (VR) on day 2 ($P<0.005$).

All the patients in both the groups were prescribed analgesics for 5 days. Analgesic requirement after 6 weeks and after 3 months was 4% and 0% in Group II (VR) respectively whereas in Group I (CC) these percentages were 22% and 4% respectively.

Assessment of Wound Complications :(Table 2)

The results of wound healing and apposition showed statistically better apposition in VR group. “Very good” apposition were reported in 20% in CC vs 38% in VR group just after repair ($P<0.005$), and 20% in CC vs 42% in VR ($P<0.005$) on day 2.

Wound gaping was seen only in 2% in VR group but healed by second intention by local dressing. However, in 24% of CC group ($P< 0.05$) the wound gaping required resuturing.

Thus there was healing by first intention in 76% of CC vs 98% of VR ($P=0.0001$).

Perineal edema was more in CC group again ($P<0.001$) which persisted at 6 weeks in 10% and after 3 months in 4% patients in CC group.

In 2(4%) and 0(0.0%) cases suture removal were required in rapidly absorbing polyglactin group after 6 weeks and 3 months respectively. For chromic catgut this cases were found in 5(10%) and 2(4%) patients after 6 weeks and 3 months respectively.

Dyspareunia was significantly less in VR group. At 6 weeks it was present in 86% in CC group vs only 8% in VR group ($P<0.001$). After 3 months it persisted in 12% CC group patients vs nil in VR group ($P<0.001$).

Satisfaction patterns

In the 5 point satisfaction scoring assessed at the end of 3 months study period - 46% of CC (Group I) vs 82% of the VR (Group II) women were satisfied (≥ 4). (Table: 3).

IV. Discussion

Episiotomy is the commonest obstetric operation. However, the perineal wound and subsequent scar cause significant morbidity in the parturient. Our study sought to determine whether the use of rapidly absorbable polyglactin (VR) for episiotomy repair in place of the most widely used chromic catgut (CC) reduced the postoperative perineal pain and had better wound healing.

Our study showed that VR is significantly better than CC in terms of short term or persisting perineal pain, edema, wound apposition and healing. Thus, it provided better post-operative mobility to the patient and also enabled early resumption of painless sexual activity.

Rapidly absorbed polyglactin (VR) has lesser tissue reaction as it absorbed by hydrolysis while chromic catgut (CC) is absorbed by proteolytic enzymes and phagocytosis^{7,8,9}. Thus, there were lesser pain scores and perineal edema in VR group.

Even sitting and walking was more painful in the CC group which has been reported by other studies^{5,11-14}. The pain while walking can be explained by dissimilar tension at 14 days in catgut suture when there is over 50% tensile strength remaining whereas, at that time rapidly absorbed polyglactin has no tensile strength left. This is negligible on lying down. Some other studies showed mild discomfort in sitting after 6 weeks which was not statistically significant⁵.

Wound infections, gaping and dehiscence requiring resuturing were less in our study as well as others in the VR group compared to CC^{5,15,16}. This is contrary to the postulation that there should be increased incidence of wound complications in VR group as it loses 50% tensile strength by day 5 and the suture falls from day 10-14⁹, which is earlier as compared to CC which loses 50% of its tensile strength after day 10-14⁵. Thus, it can be deduced that apart from tensile strength of the suture material factors like local wound infections

¹⁷ and increased inflammatory response of the tissue, both of which are more in chronic catgut affect wound healing.

An important physically and psychologically debilitating effect of episiotomy is superficial dyspareunia due to perineal scarring and narrowing. Our study showed statistically significant less dyspareunia in the VR at 6 weeks and 3 months.

Similar findings was shown in other studies with higher rate of pain-free sexual intercourse at 6 weeks, as well as more frequent sexual intercourse at 6 weeks in those whose episiotomies have been repaired with VR ^{14, 18}. However, dyspareunia scores were not different in rapidly absorbed polyglactin at 3 months or 12 months postpartum in a good quality trial comparing this suture with its standard polyglactin counterpart ²⁰ or chronic catgut. ⁵

This difference in reporting problems in sexual life may be related to difference in social and cultural practices in the different study populations. For example in our study groups most of the patients failed to initiate sexual practices as early as 6 weeks or even 3 months following delivery hence the lesser dyspareunia.

More incidence of suture removal in the catgut group was a reiteration of other studies ^{5, 18}. This is because catgut needs 90 days to be completely digested as compared to the rapidly absorbed polyglactin which takes only 42 days.

The main limitations of our study were that it was of a short duration (3months) and did not include quality of life indices. Moreover, since the sutures were available free of cost the cost-effectiveness of both the sutures could not be compared.

The strength of our study is that this to our knowledge is one of the few studies which has compared these 2 different suture materials in episiotomy repair with an adequate power (>80%) with special reference to persisting pain and wound complications. Moreover, the surgeon bias was also reduced because episiotomy repair was done by the same technique in both the groups by senior obstetrician and the questionnaire filled up by the resident on duty.

Our study demonstrated that rapidly absorbed polyglactin is better than the traditionally used chronic catgut for episiotomy repair with lesser postoperative pain and better wound healing with painless early resumption of sexual function. However because of its easy availability and supply chronic catgut is still the commonest suture material used for episiotomy repair in most poorly resourced settings. ¹⁹

V. Conclusion:

Thus it may be concluded that rapidly absorbed polyglactin may replace chronic catgut suture as a preferred alternative in episiotomy repairs owing to lesser short term morbidities. However, more robust studies of longer duration with other outcomes such as quality of life, cost effectiveness and wound healing are required to reinforce our findings.

Table – 1: Details of the groups at entry point

Demographic Parameter	Group I: CC (n=50)	Group II: VR (n=50)	P Value
Age (yrs)			
≤20	12(24%)	13(26%)	1.0
21-30	37(74%)	36(72%)	1.0
≥31	01(2%)	01(2%)	1.0
Gestational age :			
<37 weeks	39 (78%)	28 (56%)	0.033
37-40 weeks	10 (20%)	18 (36%)	0.12
>40 weeks	1 (2%)	4 (8%)	0.36
Baby weight :			
< 2500 gm.	14 (28%)	10 (20%)	0.48
≥2500 gm.	36 (72%)	40 (80%)	0.48
Mode of delivery:			
ND + epi	42 (84%)	42 (84%)	1.0
Das forceps + epi	5 (10%)	3 (6%)	0.72
Outlet forceps + epi	2 (4%)	4 (8%)	0.68
Ventouse + epi	1 (2%)	1 (2%)	1.0

Table 2: The pain perception by VAS scoring in group I (CC) vs group II (VR) at 2 hours, 2 days, 6 weeks and 3 months after episiotomy repair.

Pain Score (VAS)	Group I (n=50)CC	Group II (n=50)VR	P values
Mild pain (1-4)			
After 2 hrs	0 (0%)	42 (84%)	0.0001
After 48 hrs	19 (38%)	45 (90%)	0.0001
6 weeks	25 (50%)	9 (18%)	0.001
3 months	8 (16%)	0 (0%)	0.006
Moderate pain (5-7)			

After 2 hrs	42 (84%)	5 (10%)	0.0001
After 48 hrs	31 (62%)	5 (10%)	0.0001
6 weeks	5 (10%)	0 (0%)	0.056
3 months	0 (0%)	0 (0%)	1.0
Severe pain (8-10)			
After 2 hrs	8(16%)	3 (6%)	0.19
After 48 hrs	0 (0%)	0 (0%)	1.0
6 weeks	0 (0%)	0 (0%)	1.0
3 months	0 (0%)	0 (0%)	1.0
NO pain			
After 2 hrs	0 (0%)	0 (0%)	1.0
After 48 hrs	0 (0%)	0 (0%)	1.0
6 weeks	20 (40%)	41 (82%)	0.0001
3 months	42 (84%)	50 (100%)	0.006

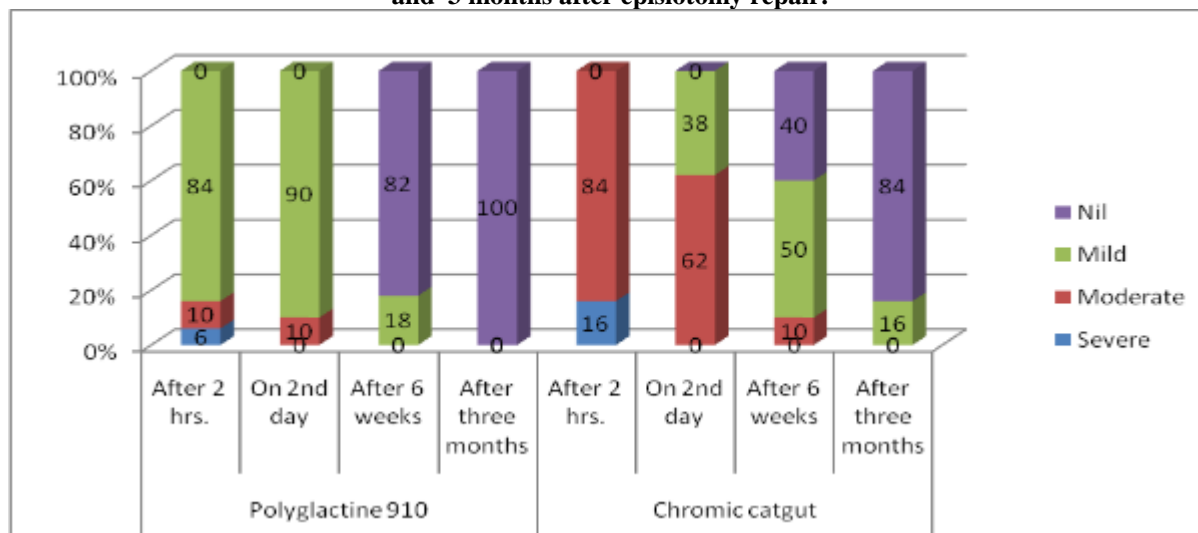
Table 3: Showing comparison of different wound complications

PARAMETERS	GROUP I (CC) %	GROUP II (VR) %	p Value
Very good apposition			
After 2 hrs	20	38	<.005
On 2nd day	20	40	<.005
Resuturing			
On 2nd day	0	12	=.02
After 6 weeks	0	10	=.04
After 3 months	0	2	
Healing			
By first intention	76	98	0.0001
By second intention	24	02	
Perineal edema			
On 2nd day	18	08	=.02
After 6 weeks	10	0	<.001
After 3 months	4	0	<.001
Dyspareunia			
After 6 wks	86	8	<.001
After 3 months	12	0	<.001

Table 4: Group wise number and percentages of patients by their satisfaction level by 5-point scoring method.

Group	Score-1	Score-2	Score-3	Score-4	Score-5
Group I (CC)	9(18)	10(20)	8(16)	19(38)	4(8)
Group II (VR)	0(0)	1 (2)	8(16)	28(56)	13(26)

Fig 1: The pain perception by VAS scoring in group I (CC) vs group II (VR) at 2 hrs, 2 days, 6 weeks and 3 months after episiotomy repair.



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